

## CLAIMS

### What is claimed is:

1. A paper pickup mechanism mounted on a feeder, comprising a plurality of driving gears, a plurality of connecting rods and a pickup roller, the pickup roller being driven in  
5 rotation and sliding move to bring a topmost paper in the feeder;

wherein the paper pickup mechanism further comprises a twist restricting gear engaging with one of the driving gears and rotating only when be subjected to a twist force greater than a predetermined twist force.

2. The paper pickup mechanism of claim 1 further comprising a twist limiter that  
10 provides the predetermined twist force.

3. The paper pickup mechanism of claim 2, wherein the twist limiter is a twist spring.

4. The paper pickup mechanism of claim 1 further comprising a transmission gear engaging with the twist restricting gear, the transmission gear pivotally connecting to the pickup roller in the feeder via a pickup shaft.

5. The paper pickup mechanism of claim 4, wherein the transmission gear is mounted on  
15 an outer side of the feeder, and the feeder has a sidewall slot for the pickup shaft to penetrate through.

6. The paper pickup mechanism of claim 5, wherein the sidewall slot has a profile of an inclined arcuate curve with an inner radius greater at its top edge than at other portions.

7. The paper pickup mechanism of claim 5, wherein the twist restricting gear is mounted  
20 outside the feeder.

8. The paper pickup mechanism of claim 1 further comprising a set of swing arms connecting to the pickup roller, and a suspended arm in the feeder.

9. A paper pickup mechanism mounted in a paper feeder, which comprises:

a set of driving gears, one end of the set of driving gears being provided with a movable transmission gear, and a center of the transmission gear pivotally connecting to a pickup shaft;

5 a pickup roller, mounted in the feeder and pivotally connecting to the pickup roller;

a set of swing arms, respectively connected to the pickup roller and a suspended arm in the feeder; and

a twist restricting gear, engaging with the transmission gear, wherein the twist restricting gear rotates only when the set of driving gears provides a twist force greater than a  
10 predetermined twist force.

10. The paper pickup mechanism of claim 9, further comprising a twist limiter to provide a predetermined twist force.

11. The paper pickup mechanism of claim 10, wherein the twist limiter is a twist spring.

12. The paper pickup mechanism of claim 9, wherein the transmission gear is mounted  
15 outside the feeder, and the feeder has a sidewall slot for the pickup shaft to penetrate through.

13. The paper pickup mechanism of claim 12, wherein the sidewall has a profile of an inclined arcuate curve whose inner radius at its top edge is greater than at other portions.

14. The paper pickup mechanism of claim 12, wherein the twist limiter and the twist restricting gear are mounted on an outer side of the feeder.

20 15. The paper pickup mechanism of claim 9, wherein the set of driving gears comprises:

a power input gear, inputting a power from a power source;

at least one internal gear, engaging with the power input gear and transmission gear; and

a plurality of connecting rods, respectively connecting the power input gear, the internal gear and the transmission gear.

5        16. The paper pickup mechanism of claim 15, wherein the power input gear engages with a first internal gear, the first internal gear engaging with a second internal gear, the power input gear interconnecting with the first internal gear and the second internal gear via a first connecting rod.

17. The paper pickup mechanism of claim 16, wherein the first connecting rod has an approximately L shape.

10        18. The paper pickup mechanism of claim 16, wherein the second internal gear connects to the transmission gear via a second connecting rod.

19. The paper pickup mechanism of claim 9, wherein the set of swing arms includes a first arm and a second arm which interconnect to each other, one end of the first arm connecting to a suspended arm, and one end of the second arm connecting to the pickup roller.

15        20. The paper pickup mechanism of claim 9, wherein the feeder is a vertical type feeder.